Environmental Education Certification Program for Nonformal Educators Guidelines for Content, Instruction and Assessment

Theme One – Environmental Literacy

Instruction: This theme should be taught either as a college course or as a multi-day workshop. The section of the course on environmental processes and systems would need to be augmented by independent study tailored to the needs of each applicant.

1.1 Questioning and Analysis

<u>Performance Objectives</u>: Environmental educators demonstrate an understanding of the scientific method and scientific theory and how they are incorporated into EE. This understanding includes the ability and the willingness to do the following things.

- Ask questions about the surrounding world
- Speculate and hypothesize
- Seek and evaluate information
- Design and carry out investigations
- Develop answers to questions
- Use appropriate tools to analyze data

Environmental educators also understand that current knowledge about the environment is incomplete and that science proceeds through a series of errors and corrections.

<u>Assessment Strategy:</u> The applicant's ability to understand scientific questioning and analysis should be assessed through an open response question in which the applicant is asked to design a strategy for investigating an environmental problem.

1.2 Knowledge of Environmental Processes and Systems

<u>Performance Objectives</u>: Environmental educators demonstrate an understanding of the processes and systems that make up the environment, including human systems. Applicants should also be able to show that they understand that being environmentally literate is a life-long learning process. The content knowledge of the environmental educator includes the interrelationships among the following subject areas and how those interrelationships affect the earth.

- Processes that shape the earth
- Changes in matter
- Energy
- Ecology and natural history
- Biodiversity and biological integrity (sustainability)
- Heredity and evolution
- Systems and connections
- Individual and group behavior

- Culture
- Political and economic systems
- Change and conflict

<u>Assessment Strategy</u>: This is a very broad set of skills and information. Therefore, the level of knowledge assessed in this section should be based on the environmental education portion of the Kentucky Program of Studies for grades 9-12 in science, social studies, health and practical living. (see http://oapd.kde.state.ky.us/eec/) Applicants should be assessed with a set of multiple choice questions and at least two open response questions that demonstrate the applicant's understanding of the interrelationships among natural and human systems.

1.3 Skills for Understanding and Addressing Environmental Issues

<u>Performance Objective</u>: Environmental educators demonstrate that they can understand, evaluate and address environmental issues. This includes the ability to do the following things.

- Identify and investigate environmental issues
- Identify and evaluate alternate solutions and courses of action
- Work with creativity, flexibility and openness to other viewpoints

1.4 Personal and Civic Responsibility: Applying Knowledge to Solving Problems

<u>Performance Objective</u>: Environmental educators demonstrate an understanding of personal and civic responsibility. This understanding includes the following concepts and skills.

- The ability to analyze shared and conflicting societal values
- Recognition by the applicant of the rights and responsibilities of citizenship and of their own ability to be effective citizens
- Recognition by the applicant that personal actions can have broad environmental consequences.

Assessment Strategy: (for themes 1.3 and 1.4) This assessment is administered in a group setting with a minimum of four applicants. Applicants are assigned a problem based on a contemporary Kentucky environmental issue and each applicant is assigned a specific role within that problem to play during the assessment. Applicants are given four weeks to explore the issues, especially with respect to the role they have been assigned to play.

At the end of the four weeks, applicants come together under the supervision of the assessment committee, which includes people with a thorough knowledge of the problem. Under the committee's supervision, applicants debate the issue (playing assigned roles), investigate alternate solutions and create a common plan to solve the problem.

Applicants are assessed as a group on their knowledge of the problem, their willingness to consider diverse viewpoints, their creativity in arriving at alternate strategies and their ability to arrive at workable solutions.

Theme Two - Foundations of Environmental Education

Instruction: The information and concepts in Theme Two should be taught as a readings course augmented by a chat room and/or discussion group. There should be a leader who guides both readings and conversations.

- 2.1 Environmental educators demonstrate an understanding of the basic characteristics and goals of the field. This understanding includes the following things.
 - Familiarity with founding documents of the field including the Belgrade Charter and the Tblisi Declaration.
 - The ability to describe the characteristics of EE
 - The ability to discuss the interdisciplinary nature of EE and how it is used to integrate and apply various subject areas, including technology.
 - The ability to describe the broad view that EE takes of the environment including the study of interactive systems, the physical environment and the built environment.
- 2.2 Environmental educators understand how EE is implemented and the various programs and policies that support it. This understanding includes the following things.
 - An understanding that the field of EE is constantly facing new issues and challenges
 - An understanding of the implications of specific research projects on how EE is implemented and the importance of empirical data to the field of EE
 - The ability to identify major national and state EE providers and resources and the target audiences of each. Environmental educators should also be familiar with environmental education membership organization such as NAAEE and KAEE.
 - An understanding of how local, state and federal policies affect EE.
 - An understanding of how EE fits into the broader field of education and how the two affect each other, especially with respect to KERA, the CATS test and "Getting to Proficiency".
- 2.3 Environmental educators are familiar with the history and evolution of the field at the international, national and, especially, at the state level. They also understand the various influences on, and key figures in, the environmental education movement at both the national and state level. This familiarity includes the following.
 - An understanding that there have been leaders in the field
 - An understanding of how research has influenced the field
 - An understanding of current issues in the field of EE and how they influence its practice

Assessment Strategy: This section may be assessed with a set of short, written (portfolio) pieces. These portfolio pieces should include (at a minimum) the following things.

1. A brief history of EE at the state, national and international level, including

- > How at least one national movement influenced the field
- Two key figures on the national EE scene and why they are important to EE (current or past)
- ➤ All the characteristics of EE as listed in the national guidelines
- A description of at least four national EE curriculum projects (Note: the above might also be given as a short answer test.)
- A description of at least one national research project that influenced the field of EE
- 2. A discussion of EE as an interdisciplinary subject including at least one example of how a natural science, a social science and one other discipline can be used together to teach an environmental topic.
- 3. A brief history of a site, agency or organization that has played a significant role in EE in Kentucky. This should include when the site, agency or organization became active in EE and at least three activities, materials or programs it has created or sponsored that have advanced the field of EE in the Commonwealth. Applicants can also do histories of their own agencies.
- * At completion of the program, applicants will also be asked to sign a code of ethics for environmental educators.

Theme Three - Planning and Implementing Environmental Education

Instruction: This theme should be taught in conjunction with Themes 4-6 as either a college course or as a multi-day (one week) workshop.

- 3.1 Environmental educators are able to design instruction that meets the needs of the varied learning styles of students including the special needs of those who have learning or physical disabilities. This includes an understanding of such factors as the following.
 - Child development
 - Different learning styles
 - Cultural perspectives
 - Inquiry based learning
- 3.2 Environmental educators are familiar with the traditional array of teaching methods used to teach about the environment. These include (but are not limited to) the following.
 - Hands-on observation and discovery
 - Inquiry
 - Cooperative learning
 - Community based action research
 - Service learning
 - Simulations and models
- 3.3 Environmental educators create a climate for exploring the environment by making their instruction engaging and by providing first hand, inquiry based experiences.
- 3.4 Environmental educators create a learning climate that is inclusive and collaborative.

- 3.5 Environmental educators are able to plan comprehensive, standards-based programs that have clear expectations, are interdisciplinary and include appropriate reflective time.
- 3.6 Environmental educators are able to take advantage of "teachable moments" by being flexible and open to student questions and ideas.
- 3.7 and 3.8 Environmental educators are aware of a wide range of environmental materials and resources which they are able to evaluate for accuracy and balance, and which they know how to access. These include the following.
 - An understanding of the criteria in the NAAEE Guidelines for Excellence in Environmental Education Materials
 - Knowledge of how the community, including business, government, nonprofit organizations, etc. can be used as a resource for learning
 - The ability to use the Internet and other technological sources appropriately
 - Knowledge of nationally developed and tested materials and instructional programs
- 3.9 Environmental educators are able to plan for, and safely use, a variety of settings that bring students into (or near) the environment about which they are learning. They are also able to help students relate experiences and knowledge gained in a local setting to issues on a regional, national or local scale. These settings may include the following.
 - Outdoor classrooms (on the school site)
 - Community settings
 - Museums, zoos and aquariums
 - Demonstration sites
 - National, state and city parks
 - Laboratories
- 3.10 Environmental educators understand how environmental education fits into the larger curriculum. This includes the ability to do the following things.
 - Understand the need for a scope and sequence in environmental education
 - Create a program to meet the specific needs of a particular agency or organization
 - Align a particular environmental education curriculum or program with the national or state standards

Assessment Strategy: Theme three is strongly related to themes 4-6. Therefore, this theme should be taught and assessed along with other themes related to instruction.

Certification Committee – Themes 4-6

Instructional Strategies

Instruction: Themes 3-6 should be taught as one course. This one course should cover all the materials in themes 3-6. This should be done because the information in these standards is so strongly interrelated. This course could be taught in any number of ways including:

- ➤ A one-semester college course
- ➤ An intensive 5 day workshop
- A series of shorter workshops

Any course teaching these themes should include (at least) the use of hands-on field work, videos, and simulations and should incorporate activities from national curricula such as Projects WET, FLP, WILD, NEED and PLT.

Applicants should be assigned a mentor as they go thorough the assessment process (developing an instructional model). This mentor should continue the instructional process as the student develops his or her model.

Performance Objectives:

- Students learn in a variety of ways. Therefore, in order to reach all students, environmental educators need to use diverse teaching methods.
- Environmental educators are familiar with, and use, an array of environmental education materials and resources. They are also familiar with state and national environmental education standards. These standards state what students should know and be able to do at each grade level.
- Environmental educators insure a safe learning environment and provide first hand field experiences in which students interact with natural systems.
- Environmental educators are able to use a wide variety of assessment tools and techniques in order to judge how well their instruction has helped students achieve goals and objectives.
- Environmental educators are able to use assessments to improve the quality of their instruction.
- Environmental educators are able to plan programs that:
 - o Are appropriate to the age and developmental level of the audience
 - o In the case of P-12 students, have specific goals and objectives that align with the state and national EE standards
 - o Integrate a variety of subjects into their instruction
 - Use tools and technology that are appropriate to subject matter and task
 - o Engage students in their own learning

Use assessment to improve instruction

Assessment: Strands 3-6 should be assessed through the creation of an annotated unit of study. This unit should (at a minimum): *

- Contain essential questions
- ➤ Use diverse instructional strategies including (at least) inquiry based activities, supervised cooperative learning plus two more of the applicants choice.
- Align the units activities and concepts to state and national environmental education standards
- > Use standards from at least two disciplines and integrate those disciplines within the unit.
- ➤ We encourage the use of PLT, NEED, FLP, WILD, WET and other materials approved by the committee.
- > Include an inquiry based field experience
- Engage the student in his or her own learning by using at least two of the following techniques: journaling, asking reflective questions, concept mapping.
- ➤ Use tools and technology in at least half the activities
- > Conclude with a culminating event

The applicant should annotate the unit with (at least) the following information.

- The grade/age/developmental level of the students the unit is designed to reach (including adult audiences) and how the unit is appropriate for those students
- > Strategies for assuring that students have a safe learning environment
- At least three points at which the applicant is assessing student progress and using the assessment to adjust and improve instruction as needed
- > Is accurate, balanced and based on scientific research
- Encourages participants to explore different perspectives and form their own opinions

^{*} A unit may be as small or large as the applicant wants as long as the committee can see evidence that the applicant understands the process.

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*The program would like good units of study to use but if that's not a possibility then that's fine